

# (12) UK Patent Application (19) GB (11) 2 316 909 (13) A

(43) Date of A Publication 11.03.1998

(21) Application No 9618690.3

(22) Date of Filing 06.09.1996

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(51) INT CL<sup>6</sup>

B42D 15/00, G07D 7/00

(52) UK CL (Edition P)

B6A AC31 AC51 ADE ATC A304

U1S S2272

(56) Documents Cited

None

(58) Field of Search

UK CL (Edition O) B6A ADE AK ATC

INT CL<sup>6</sup> B41M 3/14, B42D 15/00, G07D 7/00

Online databases: WPI

(54) A banknote for the visually impaired

(57) The banknote, which is one of a series of banknotes having different denominations, bears identifiers 2 (eg 1,10,50 units) representing at least two denominations in the series. The identifier 4 representing the denomination (1 unit) of the banknote is highlighted relative to the other identifiers eg by an embossed mark 3 (Fig 1) adjacent the identifier or an embossed mark (18, Fig 3) adjacent the other identifiers (16). Alternatively the identifier 10 (Fig 2) may be in a larger font or be in a different colour compared to the other identifiers. Two sets of identifiers 9A,9B (Fig 2) may be used.

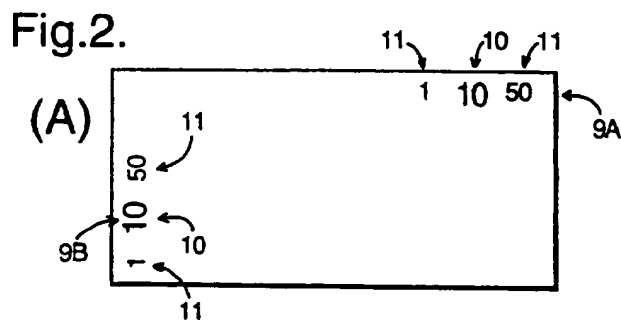
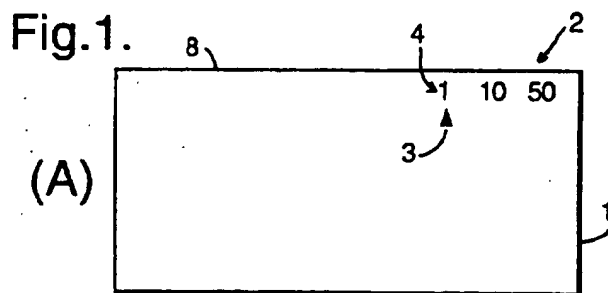


Fig.1.

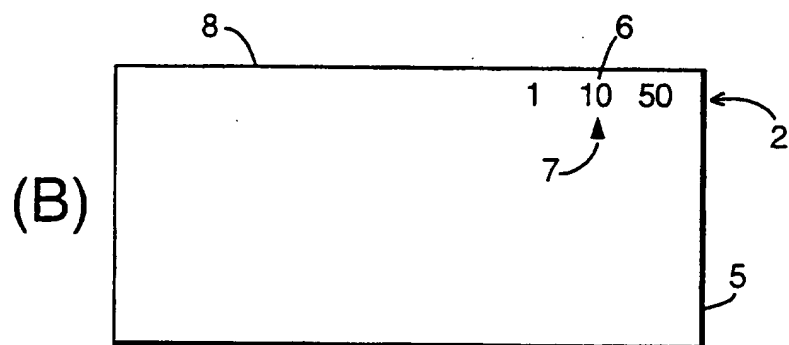
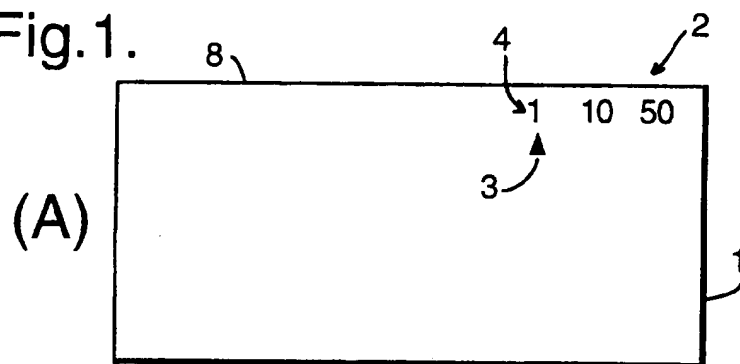


Fig.2.

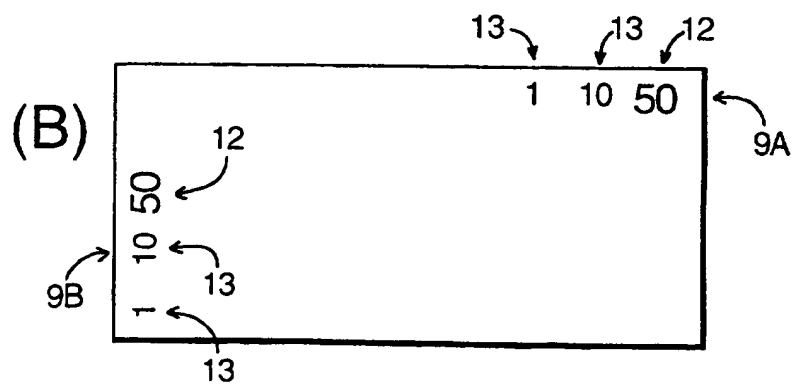
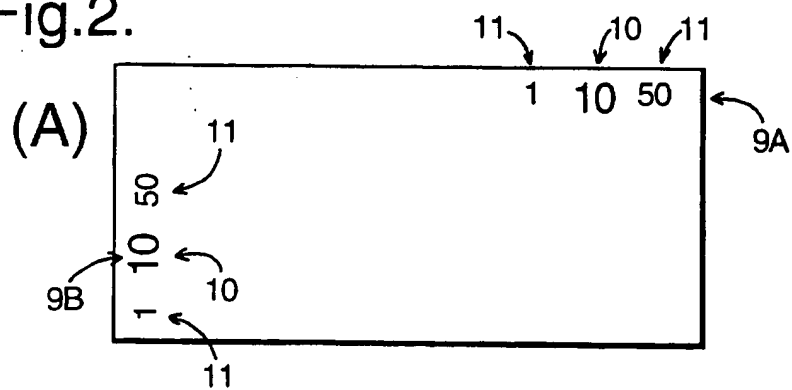


Fig.3.

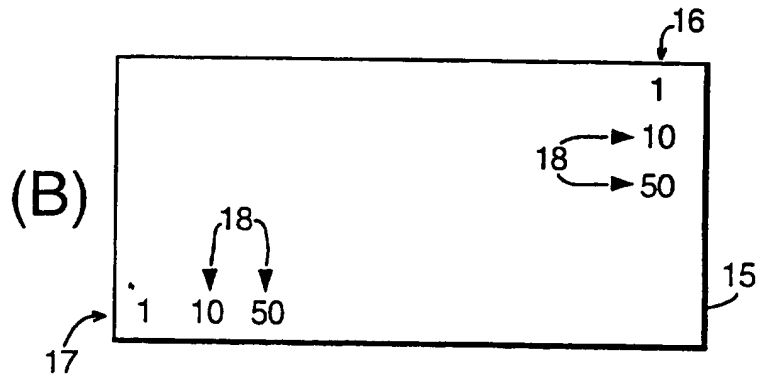
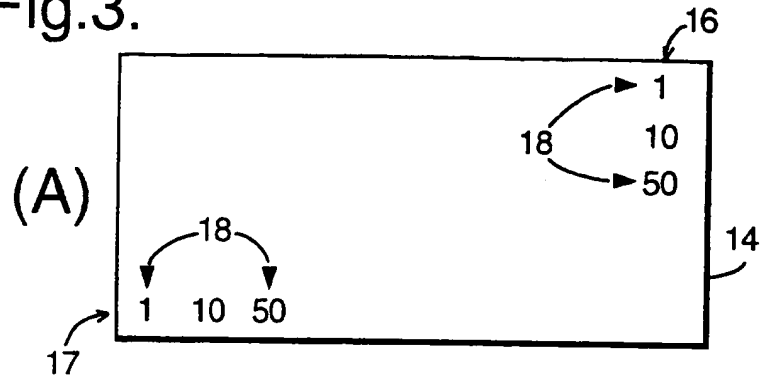
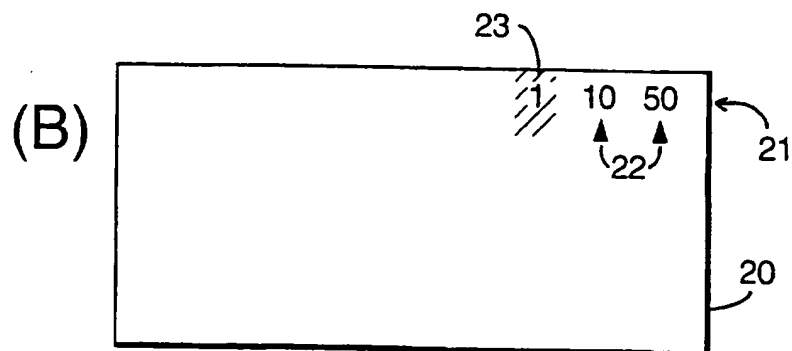
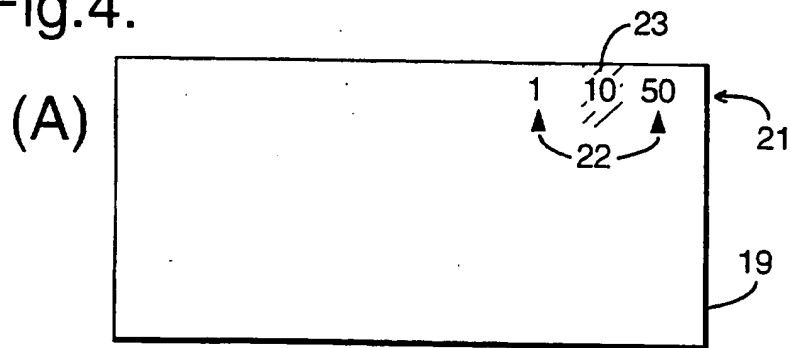


Fig.4.



BANKNOTE

The invention relates to a banknote which is one of a series of banknotes having different denominations.

5 It is common when providing a series of banknotes having different denominations to make each banknote in the series generally similar to other banknotes in the same series. This may be for a variety of reasons including a desire to distinguish banknotes of one series from  
10 banknotes of another series. For example, the banknotes of one country will be designed to be generally similar but to be readily distinguishable from banknotes of another country. Within a series, however, it is necessary to distinguish between banknotes having different values or  
15 denominations and conventionally this is achieved by providing one or more identifiers on the banknote in the form of numeric and/or alphanumeric information which defines the denomination concerned. In order to increase the ease of identifying a banknote of value, the identifier  
20 is often placed more than once on the banknote.

There has long been interest in making the various banknotes within a series recognisable from each other by the visually impaired. Visually impaired can range from totally blind to people with corrected visual acuity of no  
25 better than 20/70 in the better eye or who have a maximum visual field of no more than 30 degrees.

Existing techniques used are:- variable size currency, variable colour currency, large numerals, various  
30 arrangements of tactile markings, and special pattern shapes for different denominations.

Although these techniques are generally successful, there is a need for an improved technique.

In accordance with one aspect of the present invention, we provide a banknote which is one of a series  
35 of banknotes having different denominations, the banknote bearing first identifiers representing at least two denominations in the series, one of the first identifiers,

representing the denomination of the banknote, being highlighted relative to the other first identifier(s).

With this invention, each banknote in the series bears first identifiers representing at least two denominations in the series including its own denomination. Typically, first identifiers will be provided representing all denominations in the series. Thus, for example, if there are five different banknotes in the series then each banknote will carry first identifiers representing each of the five denominations. However, an initial series may subsequently be added to so that previously printed banknotes will only carry first identifiers representing the original denominations in the initial series.

The advantage of this arrangement is that each banknote in the series presents a similar arrangement of first identifiers which is particularly useful for the visually impaired since they can learn that arrangement and can differentiate between different banknotes in a series simply by the location of the highlighted first identifier.

Further advantages are also achieved with this invention. For example, the arrangement may be used as an aid in banknote sorting using for example the "fanning" technique. The presence of an incorrect or "rogue" denomination amongst a number of otherwise identical denominations can be detected easily by noting a shift in the highlighted first identifier. In addition, the total value of any combination of banknotes within the collection say in an individual wallet or a cassette can be rapidly calculated by visual inspection.

The invention is also useful in automated sorting and processing apparatus where a set of banknotes is to be discriminated by denomination and/or counted. To enhance this application, machine readable features may be incorporated into the identifiers as described in more detail below.

The first identifiers can be provided in a variety of ways. Typically the first identifiers will be provided in

an upright manner side by side but as an alternative they could be provided in an upright manner one above the other. Furthermore, a combination of these two approaches could be used. The first identifiers can be provided parallel with  
5 either the short or long edge of a rectangular banknote and can be provided once or more than once.

Typically, the first identifiers will comprise alphanumeric characters such as one or both of numerals and letters.

10 In some cases, the first identifiers can define each denomination in full. For example, in the case of sterling banknotes, the identifiers could comprise the numbers: 10, 20, 50. However, the first identifiers could have a  
15 abbreviated form to identify the different denominations, particularly if those denominations are relatively large numbers. Thus, denominations of 10000, 50000, and 100000 could be represented by first identifiers: 10K, 50K, 100K; 10,50,100, or simply 1,5,10.

The first identifiers can be provided on the banknote  
20 in any convenient and known manner but will typically be printed, for example by surface, screen, gravure, ink jet, ribbon, flexo or letterpress printing, or provided in relief, such as embossed or blind intaglio printed or indeed a combination of these methods.

25 Typically, the first identifiers on the same banknote will have the same colour unless a colour change is to be used for highlighting.

The first identifier representing the denomination of the banknote can be highlighted in various different ways.  
30 In a first approach, the appropriate first identifier may have a different colour or size from the other first identifiers. Typically, the first identifier will be larger than the other first identifiers.

In the preferred arrangement, however, the banknote  
35 further comprises one or more second identifiers on the banknote, the second identifier(s) being arranged to

highlight the first identifier representing the denomination of the banknote.

5 The second identifiers may be printed or provided in relief on the banknote using any of the methods mentioned above for the first identifiers. In the case of relief, this is particularly suitable for the visually impaired, particularly the totally blind, who can identify the location of a highlighted first identifier simply by feel.

10 Second identifiers can be used to highlight the appropriate first identifier in a number of different ways. For example, a single second identifier could be provided comprising an identifying marking placed adjacent the first identifier representing the denomination of the banknote. In this case, the second identifier directly highlights the  
15 appropriate first identifier. In a second approach, a number of second identifiers are provided comprising identifying markings placed adjacent all the first identifier(s) other than the first identifier representing the denomination of the banknote. In this case, the bearer  
20 of the banknote looks or feels for the first identifier which is not associated with a second identifier.

In some cases, a first identifier could be highlighted using a combination of second identifiers. For example, relief markings could be provided adjacent all the first  
25 identifiers apart from the first identifier representing the denomination of the banknote while that first identifier is additionally highlighted with a coloured background constituting a further second identifier.

30 Although the invention has been described so far in connection with the identification of banknote denomination by a human viewer, the invention is also applicable to machine reading. Thus, for example, the method of highlighting the appropriate first identifier may be suitable for machine reading. In this case, where a second  
35 identifier is used, this second identifier may not be readily visible to the human eye but nevertheless be machine readable. In another approach, the first

identifier can be highlighted by printing with a special machine readable ink which is not detectable to the human eye. In this case, a colourless, machine readable ink having for example a phosphorescent, luminescent, magnetic or infrared readable property could be used to print the appropriate first identifier in combination with another ink so that the appearance of the first identifier is substantially the same as the other first identifiers on the document. In a similar way, the second identifier(s) could be provided with both human and machine readable features.

The position of the first identifiers on each banknote can be chosen depending upon the other pictorial and security information which appears on the banknote but typically the first identifiers will be arranged along either the long or short edge of a rectangular banknote, typically adjacent one corner. In the preferred arrangement, the first identifiers are provided in the same position on each banknote in a series since this aids detection both by human and machine readers.

In the case of a machine readable approach, the appropriate first identifier or second identifier(s) may be reflective.

Some examples of banknotes according to the invention will now be described with reference to the accompanying drawings, in which:-

Figures 1A and 1B illustrate schematically two banknotes of different denomination in the same series according to a first example of the invention; and,

Figures 2A, 2B; 3A, 3B; and 4A, 4B are views similar to Figures 1A and 1B respectively but of second, third and fourth examples of the invention respectively.

Figure 1A illustrates a banknote 1 but for clarity all pictorial and other information has been omitted. Typically, the banknote 1 will carry graphics, text and a serial number in a conventional manner. It may also bear alphanumeric data defining the denomination of the



banknote. In addition, and in accordance with the invention, the banknote carries at the top right hand corner, as seen in Figure 1A, three numeric, first identifiers 2 defining the three denominations of banknote available in this series. Thus, the series in this case has banknotes with denominations 1 unit, 10 units, and 50 units. In order to highlight the first identifier which defines the value of this particular note 1, a relief marking 3 is embossed into the banknote 1 adjacent the appropriate first identifier which in this case is indicated at 4 (1 unit). The marking 3 can be located in view of its tactile nature simply by feel. In addition, the marking 3 could be coloured in a manner to distinguish it from the surrounding background of the banknote surface so that it can be visually located.

Figure 1B illustrates another banknote 5 in the same series but in this case having a value of 10 units. In this case, a first identifier 6 in the set 2 is indicated by a relief marking 7 similar to the relief marking 3.

It will be noted that the set of first identifiers 2 is provided in the same location on each of the banknotes 1,5. This assists visually impaired bearers in locating the set of first identifiers and also is useful in the case of machine reading. Thus, if each banknote is fed past a detector with the edge 8 along a datum surface, a machine reader can easily locate the first identifiers 2 and the appropriate second identifier 3,7.

It will also be noted that all the first identifiers have substantially the same height and in this case are printed from the same font.

In the Figure 2 example, two sets of first identifiers 9A,9B are used on each note in the series. In the case of Figure 2A, the note has a value of 10 units and this is indicated by providing each first identifier 10 in an enlarged form relative to the other first identifiers 11 in each set 9A,9B. In the Figure 2B banknote, this has a value of 50 units and so the first identifiers 12 are

provided in a large form compared to the first identifiers 13.

5 In a modification of the Figure 2 example, the identifier 10,12 could have the same size (height) as the identifiers 11,13 respectively but be provided in a different colour.

10 In the Figure 2 example, the sets of first identifiers 9A,9B have been provided in an upright manner side by side extending along the long and short edges of the banknote respectively. In Figure 3, each banknote 14,15 in the series carries a set of vertically printed identifiers 16 with the numbers printed in an upright manner one above the other. In addition, a second set of first identifiers 17 is provided in the normal, horizontal manner on the same banknote. In this case, the appropriate first identifier representing the denomination of the banknote is indicated by placing relief markings 18 adjacent the other first identifiers. Thus the Figure 3A banknote 14 has a value of 15 10 units and the banknote 15 in Figure 3B has a value of 1 unit.

20 In the example shown in Figure 4, two banknotes 19,20 in the same series are shown and as before the first set of identifiers 21 is provided on each banknote. In this case, the value or denomination of each banknote is identified by marking, using relief markings 22, the two first 25 identifiers which do not represent the value of the banknote (as in Figure 3) but additionally providing a distinctive coloured background 23 around the first identifier which does correspond to the value of the banknote. Thus, the banknote in Figure 4A has a value of 30 10 units and the banknote in Figure 4B a value of 1 unit. This double identification of the banknote value allows the banknote to be identified by a variety of different means such as a visually impaired viewer and a machine reader.

35 It will be appreciated that there are many different combinations of methods for highlighting the appropriate

first identifier and only some of those are described in the drawings.

Typically, the first identifiers will be surface printed, for example litho printed, on a document while the  
5 second identifiers (when provided) can be surface printed, again by litho printing, or provided in relief form in a conventional manner. The first identifiers could also be provided in relief form.

CLAIMS

1. A banknote which is one of a series of banknotes having different denominations, the banknote bearing first  
5 identifiers representing at least two denominations in the series, one of the first identifiers, representing the denomination of the banknote, being highlighted relative to the other first identifier(s).
2. A banknote according to claim 1, wherein the first  
10 identifiers are provided in an upright manner side by side.
3. A banknote according to claim 1, wherein the first identifiers are provided in an upright manner one above the other.
4. A banknote according to any of the preceding claims,  
15 wherein the first identifiers comprise alpha-numeric characters.
5. A banknote according to claim 4, wherein the first identifiers comprise numerals.
6. A banknote according to claim 4, wherein the first  
20 identifiers comprise letters.
7. A banknote according to any of the preceding claims, wherein the first identifiers define the denominations in an abbreviated form.
8. A banknote according to any of the preceding claims,  
25 wherein the first identifiers are printed on the banknote.
9. A banknote according to any of claims 1 to 7, wherein the first identifiers are provided in relief on the banknote.
10. A banknote according to claim 9, wherein the first  
30 identifiers are embossed on the banknote.
11. A banknote according to any of the preceding claims, wherein all the first identifiers are provided from the same font.
12. A banknote according to any of the preceding claims,  
35 wherein all the first identifiers have substantially the same height.

13. A banknote according to any of claims 1 to 11, wherein the first identifier representing the denomination of the banknote has a different size from the other first identifier(s).
- 5 14. A banknote according to claim 13, wherein at least three first identifiers are provided, the first identifiers other than the first identifier representing the denomination of the banknote having substantially the same size.
- 10 15. A banknote according to any of the preceding claims, further comprising one or more second identifiers on the banknote, the second identifier(s) being arranged to highlight the first identifier representing the denomination of the banknote.
- 15 16. A banknote according to claim 15, wherein one second identifier is provided comprising an identifying marking placed adjacent the first identifier representing the denomination of the banknote.
- 20 17. A banknote according to claim 15, wherein the second identifiers comprise identifying markings placed adjacent all the first identifier(s) other than the first identifier representing the denomination of the banknote.
- 25 18. A banknote according to any of claims 15 to 17, wherein the or each second identifier comprises a relief marking on the banknote.
19. A banknote according to any of the preceding claims, wherein the banknote bears first identifiers representing each denomination in the series.
- 30 20. A banknote substantially as hereinbefore described with reference to any of the examples shown in the accompanying drawings.
- 35 21. A series of banknotes of different denominations, each banknote in the series bearing first identifiers representing at least two denominations in the series, one of the first identifiers on each banknote representing the denomination of that banknote and being highlighted relative to the other first identifier(s) on the banknote.

22. A series of banknotes according to claim 21, wherein the first identifiers are provided in substantially the same position on each banknote.
23. A series of banknotes according to claim 21 or claim 22, wherein each banknote is in accordance with any of claims 1 to 20.
24. A series of banknotes according to claim 23, when dependent on any of claims 15 to 18, wherein all the first identifiers on each banknote have substantially the same appearance.
25. A method of enhancing a banknote which is one of a series of banknotes having different denominations, the method comprising providing first identifiers on the banknote representing at least two denominations in the series, one of the first identifiers, representing the denomination of the banknote, being highlighted relative to the other first identifier(s).
26. A method according to claim 25, wherein the first identifiers are printed on the banknote.
27. A method according to claim 25, wherein the first identifiers are provided in relief on the banknote.
28. A method according to any of claims 25 to 27 for enhancing a banknote or series of banknotes according to any of claims 1 to 24.
29. A method according to any of claims 25 to 28, wherein the first and second identifiers are provided on the banknote following printing of all graphical information.
30. A method of determining the denomination of a banknote according to any of claims 1 to 20, the method comprising inspecting the banknote to determine the first identifier which is highlighted.
31. A method according to claim 30, wherein the inspecting step comprises determining the location of any second identifiers on the banknote and thereby determining the highlighted first identifier.
32. A method according to claim 30 or claim 31, wherein the inspecting step comprises determining the presence of

a machine readable property of either the first or any second identifiers.



Application No: GB 9618690.3  
Claims searched: 1-32

Examiner: Graham Russell  
Date of search: 9 October 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B6A (ADE, AK, ATC)

Int Cl (Ed.6): B41M 3/14; B42D 15/00; G07D 7/00

Other: Online: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
	None	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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